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EXAMINER	
LI, BAO Q	

ART UNIT	PAPER NUMBER
1648	

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12/22/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,653	WEINER ET AL.	
	Examiner	Art Unit	
	BAO LI	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/22/2010 & 9/23/2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-7,10-15 and 17-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, -2, 4-6, 7, 10-15, 17-19, 22, 23-26, 27-34* is/are rejected.

7)☒ Claim(s) *22-24,28,29,30-33 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/2/2010& 09/23/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. In response to the claims amended filed on March 22, 2010, a new species restriction/election was made on May 26, 2010.

2. In response, Applicant's election of pathogen antigen as a species of antigen and TRAIL as species of immunomodulating protein in the reply filed on 09/23/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 1-2, 4-8, 10-15, 17-19 and 22-32 in the scope of species of Ox40, TRAIL, and pathogenic antigen are considered. However, only species of Ox40 plus a pathogenic antigen is considered for claims 1 and 30-32; and species of TRAIL and a pathogenic antigen is considered for claims 7 and 15.

Amendment I

4. The amendment and response filed on March 22, 2010 is noted and entered.

5. Claims 1, 7, 15, 22-24 have been amended.

6. Claim 8 has been canceled in this amended.

Amendment II

7. The Amendment filed on Sept. 23, 2010 has been acknowledged.

8. New claims 33-34 are added

Status of claims

9. Claims 1-2, 4-7, 10-15, 17-19, 22-32 are pending.

10. Claims 3, 8, 16, 20-21 are canceled.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. **(Previous-Rejection-Maintained).** Claims 22-24, 28-29 are still rejection on the same ground stated in the previous office action.

13. In the response, Applicants submit that since clams have been amended, the rejection should be withdrawn.

14. The amendment of claims 22-24 have been respectfully considered; however it is not found persuasive, because the claimed subject matter is still read on more than one protein encoding OX40. It is unclear how a protein encodes another protein.

15. To this content, the rejection is maintained.

Claim Rejections - 35 USC § 112

16. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17. **(Previous Rejection- Maintained).** Claims 15, 17, 18, 19, 24, 29, 32 are still rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for having an immunogenic composition comprising an expression vector or plasmid carrying a nucleic acid molecule encoded by two separate coding sequences of an antigen, preferably, a pathogenic viral antigen of Herps virus glycoprotein D and the immunomodulatory protein of OX40 or its fragment thereof, does not reasonably provide enablement for having a vaccine comprising said expression vector or plasmid. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

18. In the response, Applicants argue that first the examiner does not establish the doubt the claimed subject matter is not enabled. The reference by Lederman et al. was published in 1991 that is about 12 year after the priority date of the current Application, so it is not state of art in 2003 that indicate the claimed subject matter is not enabled.

19. Applicants further submitted that the specification of the current Application has listed several immunol-regulary proteins and immunogen from 25 different families of pathogen form which antigens can be derived. An examiner clearly demonstrated design, expression and in vivo data demonstrating the effect of same of these variants on the immune system of mice, including an immune response against the HIV-1 in mice.

20. Therefore, Applicants concluded that one of ordinary skill in the art would be able to practice the invention without undue experimentation.

21. Applicants' arguments have been respectfully considered; however it is not found persuasive for the reasons below:

22. 1). While specification describe several antigens from several pathogens and the state of art indicate that these antigens are immunogenic, the specification does not provide sufficient evidence support the rejected claims read on vaccine composition.

23. 2). A reasonable interpretation of the broadest scope of claims read on vaccine. State of art even today does not teach that any or antigen from all listed 25 pathogen, such as HIV can be used as vaccine, although they are immunogenic, and the immunostimulatory protein can be used for producing an enhanced immune response.

24. 3). The previous rejection state that Applicants do not provide any example showing that the plasmid encoding any antigen in combination with another plasmid encoding OX40 can be used as a vaccine. The enhancing immune response to HIV envelope encoded plasmid in combination with the plasmid encoding OX40 or its fragment administration is only produce an enhanced immune response possibly, but it is not sufficient to support the broadly claimed subject matter as vaccine for preventing any pathogen infection or cancer development. Moreover, the HSV infection is latent infection. There is no challenge assay taught by the specification that the HSV antigen D in combination with OX40 can prevent the HSV infection.

25. 4). The citation of Lederman et al is to illustrate the not all fragment of OX40 can be same immunoregulatory activity, Because the previous claim 15 read on using any or all fragment of OX40. But there is no support for any fragment of OX can be used as an adjuvant for producing same OX activity.

26. Given the above analysis, the rejection is maintained, because the claimed subject matter is still read on vaccine.

Claim Rejections - 35 USC § 102

27. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

28. A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

29. **(Previous Rejection -Withdrawn)** The rejection of claims 7, 10-12, 14, 15, 17, 23-29, 31, 32 under 35 U.S.C. 102 (b) as being anticipated by US Patent No.6, 344,445B1 to Boursnell et al. has been withdrawn necessaited by Applicants' amendment on March 22, 2010, in that Boursnell et al do not teach there are more than two separate nucleic acid molecules are presented in the composition.

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31. **(Previous Rejection - Withdrawn)** The rejection of claims 1-2, 4-8, 10-15 and 17-19, 22-32 under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,344,445B1 to Boursnell et al. and further in view of Rosen et al. (US Patent Application 2002/0044941A1) for claims 1-2, 4-6, 13, 14, 22, 27, 30 and Hodge et al. (JNCI 2000, Vol. 92, No. 15, pp. 1228-1239) for claims 18-19 has been withdrawn necessitated by Applicants' amendment.

32. **(Previous Rejection – Withdrawn)** The rejection of claims 7-8, 10, 15, 17 23, 24, 28, 29, 31 and 32 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent No. 6,017,735A to O'Hare et al. has been withdrawn necessitated by Applicants' amendment.

33. New Ground of Objection and Rejection

Claim Objections

34. Claim 30 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim 1. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

35. Claim 31 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim 7. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

36. Claim 32 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim 15. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

37. Claims 22-24 and 28-29 are objected to because of the following informalities: Claims 22-24 and 28-29 are objected because it is well known in the art that a protein does not encode another protein(s). To this context, claims 22-24 and 28-29 are objected.

38. Appropriate corrections are required.

Claim Rejections - 35 USC § 112

39. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

40. Claims 7, 10-13, 15, 17-19, 23-26, 28-29, 31-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, the amendment of claims 7 and 15 has introduced a new matter that lacks of support by the Application originally filed. In particular, the specification has been reviewed, but the support forth the amendment that read on a composition comprising three separate nucleic acid molecules or plasmids, wherein each of them respectively encodes an antigen, an immunodulating protein and an OX40 has not been found. Applicants are suggested providing a detail support in line and page from the specification to overcome the rejection.

Claim Rejections - 35 USC § 103

41. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

42. Claims 1, 2, 4, 5, 6, 22, 27, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberg et al. (WO 99/42585A1. IDS submitted on Sep. 23, 2010 by Applicants) and Hinuma et al. (FEBS 1991, Vol. 288, No. 1-2, pp. 138-142).

43. Claims 1-2, 5-6, 22, 27 and 30 are directed to an immunogenic composition comprising two separate nucleic acid molecules encoding an antigen and an immunostimulatory factor of OX40, wherein the antigen is preferably a herpes simplex antigen HBS2gD.

44. Weinberg et al. teach an immunogenic composition and a method for using the same to produce an enhanced immune response, wherein the immunogenic composition comprises two separate nucleic acid molecules, one of the nucleic acid molecules encodes an antigen selected from a viral antigen, bacterial antigen and tumor antigen, and another nucleic acid encodes constimulatory factor, such as OX40 receptor or OX40 ligand (See whole document disclosure, e.g. pages 2-19). Weinberg et al. do teach that the viral antigen can be the one selected from various viruses including herps virus; however, Weinberg et al. do not explicitly teach using OX40 to enhance antigen HSV glycoprotein D (HSVgD).

45. Hinuma et al. teach a method for converting recombinant viral protein into high immunogenic antigen. They teach that the weak antigen HSVgD can be recombinant co-expressed with an immunostimulaory cytokine IL-2 by fusing the IL-2 at its C-terminus, such that the cytotoxic activity of the Keller T cell are significantly increase than using theses tow molecules alone, hereby significantly protect the mice challenged with HSV infection (See entire document, especially Figs. 1-3 and Table II.

46. Therefore, it would have been obvious for a person ordinarily skilled in the art to produce an enhanced immune response to the weak antigen HSVgD using the method taught by

Weinberg et al. i.e. co-expressing the HSVgD with co-stimulatory factor OX40 with reasonable expectation of success.

47. As there are no unexpected results have been provided, e.g. it is only separated plasmids encoding the antigen and OX40 respectively that a significantly enhanced immune response can be produced. Hence the claimed invention as a whole is prima facie obvious absence unexpected results.

Conclusion

48. 1). Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

49. 2). Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 09/23/2010 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

50. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BAO LI whose telephone number is (571)272-0904. The examiner can normally be reached on 6:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zachariah Lucas can be reached on 571-272-0905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bao Qun Li/
Primary Examiner, Art Unit 1648
12/05/2010